

## US-CLAIMS

5 1. An adhesive composition comprising a thermoplastic hydrophilic homogeneous polymeric matrix having an elastic modulus at a temperature of 37°C,  $G'_{37}$ , and a viscous modulus at a temperature of 37°C,  $G''_{37}$ , said thermoplastic hydrophilic homogeneous polymeric matrix characterized in that it has:

10 a maximum liquid absorption capacity in 24 hours, measured according to the Liquid Absorption Test described herein, of from 0.02 g/g to 5 g/g;

15 a liquid absorption rate, measured according to the Liquid Absorption Test described herein, such that the liquid absorption capacity at 1 min is at least 15%, of said maximum liquid absorption capacity in 24 hours;

said elastic modulus  $G'_{37}$  (1 rad/s) in the range 100 Pa to 500.000 Pa;

20 said viscous modulus  $G''_{37}$  (1 rad/s) in the range 50 Pa to 200.000 Pa;

the ratio  $G'_{37}$  (100 rad/s) /  $G'_{37}$  (1 rad/s) not greater than 20.

25 2. An adhesive composition according to claim 1, characterized in that it has a moisture vapour transmission rate of at least 200 g/m<sup>2</sup> 24h, said moisture vapour transmission rate measured according to the ASTM E-96B test method on a continuous layer of said adhesive composition having a thickness of at least 20  $\mu$ .

30 3. An adhesive composition according to claim 1, characterized in that said thermoplastic hydrophilic homogeneous polymeric matrix comprises:

a first polar cohesive thermoplastic polymer, or blend of polar cohesive thermoplastic polymers,

35 a second polar adhesive thermoplastic polymer, or blend of polar adhesive thermoplastic polymers,

a compatible plasticiser, or blend of compatible plasticisers,

40 optionally a tackifying resin, or blend of tackifying resins

4. An adhesive composition according to claim 3, characterized in that said first polar cohesive thermoplastic polymer, or at least one polymer of said blend of polar cohesive thermoplastic polymers, is a thermoplastic elastomer.

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5. An adhesive composition according to claim 3, characterized in that said first polar cohesive thermoplastic polymer, or at least one polymer in said blend of polar cohesive thermoplastic polymers, has a maximum liquid absorption capacity in 24 hours of at least 0.01 g/g.

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6. An adhesive composition according to claim 5, characterized in that said maximum liquid absorption capacity in 24 hours is at least 0.02 g/g.

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7. An adhesive composition according to claim 5, characterized in that said maximum liquid absorption capacity in 24 hours is at least 0.05 g/g.

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8. An adhesive composition according to claim 3, characterized in that said second polar adhesive thermoplastic polymer, or at least one polymer in said blend of polar adhesive thermoplastic polymers, has a maximum liquid absorption capacity in 24 hours of at least 0.01 g/g.

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9. An adhesive composition according to claim 8, characterized in that said maximum liquid absorption capacity in 24 hours is at least 0.02 g/g.

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10. An adhesive composition according to claim 8, characterized in that said maximum liquid absorption capacity in 24 hours is at least 0.05 g/g.

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11. An adhesive composition according to claim 3, characterized in that said first and said second thermoplastic polymers, or respective blends of thermoplastic polymers, overall comprise not more than 70% by weight of a thermoplastic polymer or polymers having a maximum liquid absorption capacity in 24 hours of less than 0.01 g/g.

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12. An adhesive composition according to claim 11, characterized in that said first and said second thermoplastic polymers, or respective blends of thermoplastic polymers, overall comprise not more than 60% by weight of a thermoplastic polymer or polymers having a maximum liquid absorption capacity in 24 hours of less than 0.01 g/g.

13. An adhesive composition according to claim 11, characterized in that said first and said second thermoplastic polymers, or respective blends of thermoplastic polymers, overall comprise not more than 50% by weight of a thermoplastic polymer or polymers having a maximum liquid absorption capacity in 24 hours of less than 0.01 g/g.

14. An adhesive composition according to claim 3, characterized in that said thermoplastic hydrophilic homogeneous polymeric matrix comprises:

10 from 1% to 50%, by weight of said matrix, of said first polar cohesive thermoplastic polymer, or blend of polar cohesive thermoplastic polymers,

from 1% to 80%, by weight of said matrix, of said second adhesive thermoplastic polymer, or blend of polar adhesive thermoplastic polymers,

15 from 5% to 85%, by weight of said matrix, of said compatible plasticiser, or blend of compatible plasticisers, and

20 from 0% to 45%, by weight of said matrix, of said tackifying resin or blend of tackifying resins.

15. An adhesive composition according to claim 3, characterized in that said first polar cohesive thermoplastic polymer or blend of polar cohesive thermoplastic polymers is selected from the group consisting of polyurethanes; polyether-polyester- and polyetherester-amide block copolymers; ionomers; polyesters and copolyesters; polyetherester block copolymers; polyamides and copolyamides; polyethylene vinylacetate with vinylacetate content of at least 28%; polyethylene acrylic and methacrylic esters copolymers; polyethylene acrylic acid copolymers; polyethylene vinyl alcohol copolymers; styrenic block copolymers and polyolefins polarly modified by insertion or grafting of, or by copolymerization with, highly polar groups/monomers, such as e.g. maleic or succinic anhydride, carbon monoxide, sulphonic groups, etc.; and blends thereof.

16. An adhesive composition according to claim 15, characterized in that said first polar cohesive thermoplastic polymer or blend of polar cohesive thermoplastic polymers is selected from the group consisting of polyurethanes; polyether-polyester- and polyetherester-amide block copolymers; ionomers; polyetherester block copolymers; styrene-ethylene-butylene-maleic anhydride copolymers; and blends thereof.

17. An adhesive composition according to claim 15, characterized in that said first polar cohesive thermoplastic polymer or blend of polar cohesive thermoplastic polymers is selected from the group consisting of polyurethanes; polyether-polyester- and polyetherester-amide block copolymers; ionomers; polyetherester block copolymers; and blends thereof.

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18. An adhesive composition according to claim 3, characterized in that said second polar adhesive thermoplastic polymer or blend of polar adhesive thermoplastic polymers is selected from the group consisting of sulfonated polyesters; thermoplastic polyacrylates; polyvinyl pyrrolidone and its copolymers such as polyvinyl pyrrolidone vinyl acetate copolymer; polyvinyl ethers; polyvinyl alcohol; polyethylene oxide; polyketones; and blends thereof.

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19. An adhesive according to claim 18, characterized in that said second polar adhesive thermoplastic polymer or blend of polar adhesive thermoplastic polymers is selected from the group consisting of sulfonated polyesters; thermoplastic polyacrylates; polyvinyl pyrrolidone and its copolymers; polyvinyl ethers; and blends thereof.

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20. An adhesive composition according to claim 3, characterized in that said compatible plasticiser, or blend of compatible plasticisers, is selected from the group consisting of citric acid esters, tartaric acid esters, benzoic acid esters, sucrose esters, tri-mellitates, sorbitol, urea, epoxidized vegetal oils, polymerised vegetal oils, castor oil and its derivatives, phthalates, liquid polyesters, liquid polyamides, glycolates, aromatic sulfonamides, polyhydric alcohols and their esters, glycerol and its esters, pentaerythritol and its esters, glycols and polyglycols and their esters and ethers, polyethylene glycol- polypropylene glycol block copolymers, sorbitan esters, phosphates, lactic acid and its esters, mono- and dicarboxylic fatty acids (C<sub>8</sub>-C<sub>22</sub>) and their esters, esters of mono- and dicarboxylic fatty acids (C<sub>8</sub>-C<sub>22</sub>) hydrophilically modified by insertion in the molecular chain of 1 to 40 moles of ethylene oxide and/or of propylene oxide per mole of base ester, polyethers and their derivatives, and blends thereof.

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21. An adhesive composition according to claim 20, characterized in that said compatible plasticiser, or blend of compatible plasticisers, is selected from the group consisting of citric acid esters, aromatic sulfonamides, benzoates, glycols and polyglycols and their esters, glycerol and its esters; and blends thereof.

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22. An adhesive composition according to claim 3, characterized in that said optional tackifying resin or blend of tackifying resins is selected from the group

consisting of rosins and rosin esters, aromatic and aliphatic-aromatic resins, terpene and terpene-phenolic resins, aromatic acrylic resins, and blends thereof.

23. An adhesive composition according to claim 22, characterized in that said

5 optional tackifying resin or blend of tackifying resins is selected from the group consisting of rosins and rosin esters, aromatic acrylic resins, and blends thereof.

24. An adhesive composition according to claim 1, characterized in that said thermoplastic hydrophilic homogeneous polymeric matrix comprises not more than

10 25%, by weight of said matrix, of one or more components which are soluble or dispersible in a saline solution containing 0.9% by weight of sodium chloride in water.

25. An adhesive composition according to claim 24, characterized in that said

15 thermoplastic hydrophilic homogeneous polymeric matrix comprises not more than 15%, by weight of said matrix, of one or more components which are soluble or dispersible in a saline solution containing 0.9% by weight of sodium chloride in water.

20 26. An adhesive composition according to claim 24, characterized in that said

thermoplastic hydrophilic homogeneous polymeric matrix comprises not more than 10%, by weight of said matrix, of one or more components which are soluble or dispersible in a saline solution containing 0.9% by weight of sodium chloride in water.

25 27. An adhesive composition according to claim 1, characterized in that said thermoplastic hydrophilic homogeneous polymeric matrix has a complex viscosity ( $\eta^*$ ) in the range of: 5 poise  $< \eta^* <$  4000 poise at a frequency of 1 rad/s, and  $\eta^* <$  2000 poise at a frequency of 1000 rad/s, said complex viscosities ( $\eta^*$ ) at a process 30 temperature (T) comprised between 110°C and 210°C.

28. An adhesive composition according to claim 1, characterized in that it comprises an inorganic solid filler compound or blend of inorganic solid filler compounds dispersed into said thermoplastic hydrophilic homogeneous polymeric 35 matrix.

29. An adhesive composition according to claim 28, characterized in that said inorganic solid filler compound or blend of inorganic solid filler compounds is selected from the group consisting of silica, Zn oxide, and zeolites.

30. A disposable human waste management device which comprises the adhesive composition of claim 1, wherein said device comprises a bag having an aperture and a flange surrounding said aperture for adhesive attachment to the urogenital and/or perianal area of a wearer, said flange having a wearer facing surface comprising said adhesive composition.

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31. A disposable absorbent article which comprises an adhesive composition according to claim 1, wherein said article comprises an absorbent core and a wearer-facing surface comprising said adhesive composition.

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32. A personal care article which comprises an adhesive composition according to claim 1, wherein said adhesive composition comprises an active agent capable of releasing an active substance to the skin.